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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference M631 0002	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/CA2004/000223	International filing date *(day/month/year)* 18.02.2004	Priority date *(day/month/year)* 18.02.2003
International Patent Classification (IPC) or national classification and IPC E04D1/20		
Applicant MODCO TECHNOLOGY (CANADA) LTD. et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 14 (pages 21, 23-35) sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
16.12.2004	15.02.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Demeester, J Telephone No. +31 70 340-1052

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CA2004/000223

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-20	as originally filed

Claims, Numbers

3-9	as originally filed
1, 2, 10-84	received on 16.12.2004 with letter of 16.12.2004

Drawings, Sheets

1/14-14/14	as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-84
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-84
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-84
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:
   D1: US-A-5 305 570 (MENENDEZ SANTIAGO ET AL) 26 April 1994 (1994-04-26)
   D2: US-A-6 122 877 (HEIKKILA KURT E ET AL) 26 September 2000 (2000-09-26)
   D3: US-A-4 864 787 (BUKOWSKI STANLEY) 12 September 1989 (1989-09-12)

2.1. The document D1 (fig. 2, 3, 5, 6 and 8) is regarded as being the closest prior art to the subject-matter of new claim 1, and discloses a panel according to original claim 1 as filed (18.02.2004) and published (02.09.2004). Also D2 (fig. 6 and 11) and D3 (fig. 7) disclose all the features of original claim 1.
The subject-matter of new claim 1 differs from these known panels disclosed in D1-D3 in that it comprises ***an additional cavity on the underside of the panel between the front edge and the longitudinal cavity of the panel.***
The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

2.2. Said cavity provides a vacuum break which disrupts any wind-driven rain or water that may pass along the underside of the panel (cf. description, page 11). The problem to be solved by the present invention may therefore be regarded as increasing the watertightness of the panel.
The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:
The zone in between the longitudinal cavity (formed by parts 64 and 37, cf. fig. 8 of D1) and the front edge (15) of the panel of D1 is formed by a thin sheet. Said zone is thus not suitable to comprise such an additional cavity. Therefore, starting from D1, the skilled person would not consider integrating such an additional cavity in the panel of D1. The same applies to the panels of D2 and D3.

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(J. Demeester)

WHAT IS CLAIMED IS:

1. A panel having front and rear edges and first and second side edges and adapted to interfit and interlock with similar panels when installed, comprising:

a nailing flange along the rear edge of the panel;

at least one decorative element between the nailing flange and the front edge of the panel;

a longitudinal protrusion extending upwardly and forwardly between the nailing flange and the at least one decorative element;

an indented region on the underside of the panel along its front edge;

a longitudinal cavity in the indented region adapted to interfit and interlock with the longitudinal protrusion of an identical panel in front of it; and

an additional cavity on the underside of the panel between the front edge of the panel and the longitudinal cavity of the panel,

wherein, when the longitudinal cavity is interfitted and interlocked with the longitudinal protrusion of an identical second panel in front of it, the panel is latched from moving further backwards away from the second panel and the front edge of the panel is also latched against upward movement, and

wherein, when the longitudinal cavity is interfitted and interlocked with the longitudinal protrusion of the second panel, the indented region of the panel, when viewed from the side of the panel, encompasses both the longitudinal protrusion and the nailing flange of the second panel.

2. The panel of claim 1, wherein the panel further comprises at least one transverse structural support running between the front and rear edges of the panel between the first and second side edges of the panel.

10. The panel of any of claims 1 to 9, wherein the nailing flange extends substantially continuously from the first side edge to the second side edge of the panel.

11. The panel of any of claims 1 to 10, wherein the nailing flange further comprises a water stop along its rear edge.

12. The panel of any of claims 1 to 11, wherein the panel further comprises:

a transverse protrusion extending upwardly along the first side edge of the panel; and

a transverse cavity on the underside of the panel along the second side edge of the panel adapted to interfit and interlock with the transverse protrusion of an identical panel to the side of it,

wherein, when the transverse protrusion is interfitted and interlocked with the transverse cavity of a panel to the side of it, the panel is prevented from sideway movement away from the panel to its side.

13. The panel of any of claims 1 to 12, wherein the panel further comprises:

a recessed water reservoir extending downwardly from the top of the panel near the intersection of the first side edge and the rear edge of the panel; and

a reservoir protrusion extending downwardly from the underside of the panel near the intersection of the second side edge and the front edge of the panel, adapted to interfit and interlock with the recessed water reservoir of an identical panel to the side of it,

wherein, when the reservoir protrusion is interfitted and interlocked with the recessed water reservoir of a panel to the side of it, the panel is further prevented from sideway movement away from the panel to its side.

14. The panel of claim 13, wherein the recessed water reservoir drains into an adjacent drain gap.

15. The panel of any of claims 1 to 14, further comprising:

a plurality of transverse structural supports running between the front and rear edges of the panel between the first and second side edges of the panel; and

a plurality of longitudinal structural supports running between the first and second side edges of the panel between the front and rear edges of the panel,

wherein the transverse structural supports and longitudinal structural supports are recessed from the bottom of the panel relative to the first and second side edges of the panel.

16. The panel of any of claims 1 to 15, wherein the bottom surface of the panel near the front and rear edges of the panel further comprises a plurality of slots between a hollow center of the panel and the front and rear edges of the panel.

17. The panel of any of claims 1 to 16, wherein the at least one decorative element is a simulated wood shake.

18. The panel of any of claims 1 to 16, wherein the at least one decorative element is a simulated tile.

19. The panel of any of claims 1 to 16, wherein the at least one decorative element is simulated slate.

20. The panel of any of claims 1 to 16, wherein the at least one decorative element is a simulated stone.

21. The panel of any of claims 1 to 16, wherein the at least one decorative element is a simulated brick.

22. The panel of any of claims 1 to 21, wherein the at least one decorative element is a plurality of decorative elements.

23. The panel of claim 22, wherein the plurality of decorative elements are arranged in a single row.

24. The panel of claim 22, wherein the plurality of decorative elements are arranged in a plurality of rows.

25. The panel of any of claims 1 to 24, wherein the panel is made from plastic.

26. The panel of any of claims 1 to 24, wherein the panel is made from rubber.

27. The panel of any of claims 1 to 24, wherein the panel is made from a blend of rubber and plastic.

28. The panel of either of claims 25 or 27, wherein the plastic takes the form of recycled industrial polymers.

29. The panel of either of claims 26 or 27, wherein the rubber takes the form of recycled rubber tire crumb.

30. The panel of any of claims 1 to 24, wherein the panel is made from fibreglass.

31. The panel of any of claims 1 to 24, wherein the panel is made from metal.

32. The panel of any of claims 1 to 24, wherein the panel is made from natural materials.

33. The panel of any of claims 1 to 31, wherein the panel is colored to simulate a natural material.

34. The panel of any of claims 1 to 33, wherein the panel is about 40 inches in length.

35. The panel of any of claims 1 to 34, wherein the panel is about 16 inches in width.

36. The panel of any of claims 1 to 35, wherein the panel is about 1.8 inches in thickness at its thickest portion.

37. The panel of any of claims 1 to 36, wherein the panel has an exposed surface when installed of about three square feet.

38. A system comprising the panel of any of claims 1 to 37 and an accessory cap having front and rear edges and first and second side edges, for covering changes of direction in a substrate, comprising:

a nailing flange along the rear edge of the accessory cap;

a decorative element between the nailing flange and the front of the accessory cap;

a protrusion extending upwardly and forwardly between the nailing flange and the decorative element;

an indented region on the underside of the accessory cap along its front edge;

a cavity in the indented region adapted to interfit and interlock with the protrusion of an identical accessory cap in front of it,

wherein, when the cavity is interfitted and interlocked with the protrusion of an identical second accessory cap in front of it, the accessory cap is latched from moving further backwards away from the second accessory cap and the front edge of the accessory cap is also latched against upward movement, and

wherein, when the cavity is interfitted and interlocked with the protrusion of the second accessory cap, the indented region of the accessory cap, when viewed from the side of the accessory cap, encompasses both the protrusion and the nailing flange of the second accessory cap.

39. The system of claim 38, wherein the protrusion is removable from and re-attachable to the accessory cap.

40. The system of either of claims 38 or 39, wherein the accessory cap further comprises at least one transverse structural support running between the first and second side edges of the accessory cap between the front and rear edges of the accessory cap.

41. The system of claim 40, wherein the at least one transverse structural support is a plurality of transverse structural supports running between the first and second side edges of the accessory cap between the front and rear edges of the accessory cap.

42. The system of either of claims 40 or 41, wherein the at least one transverse structural support is recessed from the bottom of the accessory cap relative to the first and second side edges of the accessory cap.

43. The system of any of claims 38 to 42, wherein the accessory cap further comprises at least one longitudinal structural support running between the front and rear edges of the accessory cap between the first and second side edges of the accessory cap.

44. The system of claim 43, wherein the at least one longitudinal structural support is a plurality of longitudinal structural supports running between the front and rear edges of the accessory cap between the first and second side edges of the accessory cap.

45. The system of either of claims 43 or 44, wherein the at least one longitudinal structural support is recessed from the bottom of the accessory cap relative to the first and second side edges of the accessory cap.

46. A system comprising the panel of any of claims 1 to 37 and an accessory cap having front and rear edges and first and second side edges, for covering changes of direction in a substrate, comprising a plurality of transverse structural supports running between the first and second side edges of the accessory cap between the front and rear edges of the accessory cap, wherein the transverse structural supports are recessed from the bottom of the accessory cap relative to the first and second side edges of the accessory cap.

47. A system comprising the panel of any of claims 1 to 37 and an accessory cap having front and rear edges and first and second side edges, for covering changes of direction in a substrate, comprising:

a plurality of transverse structural supports running between the first and second side edges of the accessory cap between the front and rear edges of the accessory cap;

a plurality of longitudinal structural supports running between the front and rear edges of the accessory cap between the firsts and second side edges of the accessory cap,

wherein the transverse structural supports and longitudinal structural supports are recessed from the bottom of the accessory cap relative to the first and second side edges of the accessory cap.

48. The system of any of claims 38 to 47, wherein the accessory cap is made from plastic.

49. The system of any of claims 38 to 47, wherein the accessory cap is made from rubber.

50. The system of any of claims 38 to 47, wherein the accessory cap is made from a blend of rubber and plastic.

51. The system of either of claims 48 or 50, wherein the plastic takes the form of recycled industrial polymers.

52. The system of either of claims 49 or 50, wherein the rubber takes the form of recycled rubber tire crumb.

53. The system of any of claims 38 to 47, wherein the accessory cap is made from fibreglass.

54. The system of any of claims 38 to 47, wherein the accessory cap is made from metal.

55. The system of any of claims 38 to 47, wherein the accessory cap is made from natural materials.

56. The system of any of claims 38 to 54, wherein the accessory cap is colored to simulate a natural material.

57. The system of any of claims 38 to 56, wherein the accessory cap further comprises a hinge along its longitudinal center to allow the accessory cap to flex and adjust to a variety of angles through which the substrate may change direction.

58. The system of claim 57, wherein the accessory cap is formed in one piece and wherein the hinge consists of a portion of the accessory cap along its longitudinal center formed of lesser thickness than the surrounding portions of the accessory cap.

59. A system comprising the panel of any of claims 1 to 37 and a starter strip comprising:

a nailing flange along the rear edge of the starter strip; and

a longitudinal protrusion extending upwardly and forwardly in front of the nailing flange, adapted to interfit and interlock with the longitudinal cavity of the panel of any of claims 1 to 11,

wherein, when the longitudinal protrusion of the starter strip is interfitted and interlocked with the longitudinal cavity of the panel, the panel is latched from moving further backwards away from the starter strip and the front edge of the panel is also latched against upward movement, and

wherein, when the longitudinal protrusion of the starter strip is interfitted and interlocked with the longitudinal cavity of the panel, the indented region of the panel, when viewed from the side of the panel, encompasses both the longitudinal protrusion and the nailing flange of the starter strip.

60. The system of claim 59, wherein the nailing flange of the starter strip further comprises a water stop along its rear edge.

61. The system of either of claims 59 or 60, further comprising an integrated drip edge element along the front edge of the starter strip.

62. The system of any of claims 59 to 61, wherein the starter strip is made from plastic.

63. The system of any of claims 59 to 61, wherein the starter strip is made from rubber.

64. The system of any of claims 59 to 61, wherein the starter strip is made from a blend of rubber and plastic.

65. The system of either of claims 62 or 64, wherein the plastic takes the form of recycled industrial polymers.

66. The system of either of claims 63 or 64, wherein the rubber takes the form of recycled rubber tire crumb.

67. The system of any of claims 59 to 61, wherein the starter strip is made from fibreglass.

68. The system of any of claims 59 to 61, wherein the starter strip is made from metal.

69. The system of any of claims 59 to 61, wherein the starter strip is made from natural materials.

70. The system of any of claims 59 to 68, wherein the starter strip is colored to simulate a natural material.

71. A system of panels comprising a plurality of panels as claimed in any of claims 1 to 37, interlocked together.

72. A system of panels comprising a plurality of panels as claimed in claim 12, wherein the panels are interlocked together in at least one row by interfitting and interlocking the transverse protrusion of each panel with the transverse cavity of any adjacent panel.

73. A system of panels comprising a plurality of panels as claimed in either of claims 13 or 14, wherein the panels are interlocked together in at least one row by interfitting and interlocking the reservoir protrusion of each panel with the recessed water reservoir of any adjacent panel.

74. A system of panels comprising a plurality of panels as claimed in any of claims 1 to 14, wherein rows of panels are interlocked together by interfitting and interlocking the longitudinal protrusion of each panel within a row with the longitudinal cavity of at least one panel within an adjacent row.

75. The system of claim 74, wherein the decorative elements of the panels within a row are staggered with respect to the decorative elements of the panels within an adjacent row.

76. A system comprising:

the starter strips of any of claims 59 to 70 installed along the edge of a substrate; and

the system of panels of either of claims 74 or 75 installed on the same substrate with the longitudinal cavities of the frontmost row of the system of panels interfitted and interlocked with the longitudinal protrusions of the installed starter strips.

77. The system of claim 76, further comprising a plurality of the accessory caps of any of claims 38 to 45 interlocked together to cover any change of direction of the substrate on which the system of panels is installed.

78. The system of claim 77, wherein the plurality of accessory caps are interlocked together by interfitting and interlocking the protrusion of each accessory cap with the cavity of any adjacent accessory cap.

79. A method of installing a system of panels on a substrate, comprising:

installing one or more of the starter strips of any of 59 to 70 as required along an edge of the substrate by inserting fasteners through the nailing flange of the starter strips into the substrate;

interfitting and interlocking the longitudinal cavity of each of a first row of the panels of claim 12 to the longitudinal protrusion of one or more of the starter strips such that each panel is latched from moving further backwards away from the starter strips and such that the front edge of each panel is latched against upward movement, and such that the indented region of each panel, when viewed from the side of the panel, encompasses both the longitudinal protrusion and the nailing flange of one or more of the starter strips;

interfitting and interlocking the transverse protrusion of each panel within the first row with the transverse cavity of any adjacent panel within the first row;

fastening the first row of panels to the substrate by inserting fasteners through the nailing flanges of panels within the first row;

interfitting and interlocking the longitudinal cavity of each of a second row of panels to the longitudinal protrusion of one or more panels within the first row such that each panel within the second row is latched from moving further backwards away from the first row and such that the front edge of each panel within the second row is latched against upward movement, and such that the indented region of each panel within the second row, when viewed from the side of the panel, encompasses both the longitudinal protrusion and the nailing flange of one or more panels within the first row;

interfitting and interlocking the transverse protrusion of each panel within the second row with the transverse cavity of any adjacent panel within the second row;

fastening the second row of panels to the substrate by inserting fasteners through the nailing flanges of the panels within the second row.

80. The method of claim 79, further comprising interfitting and interlocking additional rows of panels to the already installed system of panels.

81. The method of either of claims 79 or 80, further comprising the step of arranging each row of panels such that the decorative elements within the row of panels are staggered relative to the decorative elements within the previously installed adjacent row.

82. The method of any of claims 79 to 81, further comprising the step of removing existing cladding material from the substrate prior to installing the one or more starter strips.

83. The method of any of claims 79 to 82, further comprising the step of covering the substrate with an underlayment prior to installing the one or more starter strips.

84. The method of any of claims 79 to 83, further comprising the step of installing the accessory caps of any of claims 38 to 45, and interfitting and interlocking them together, to cover any changes of direction in the substrate.